GASTROINTESTINAL DISORDERS – Cost Studies

PGI13
ESTIMATION OF THE BUDGET IMPACT OF RIFAXIMIN TREATMENT IN PATIENTS WITH IRRITABLE BOWEL SYNDROME

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OBJECTIVES: Rifaximin is a minimally absorbed antimicrobial agent that has demonstrated efficacy for the treatment of irritable bowel syndrome with diarrhea (IBS-D) in 3 multicenter, randomized, controlled trials. After an initial 2-week course of therapy, rifaximin should be considered for repeat treatment only upon recurrence of symptoms, in contrast to other IBS treatment options that require chronic administration to maintain symptom improvement. The aim of this study was to evaluate the cost of adopting rifaximin for treating patients with IBS-D. **METHODS:** A model was created to project the incremental budget impact of adding rifaximin for treating patients with IBS-D in the US. The budget impact (2014 dollars) with rifaximin was estimated based on a hypothetical health plan with 10,000,000 members and 138,813 treated IBS patients receiving antidiarrheals, rifaximin, antispasmodics, alosetron, lubiprostone, linaclotide, and tricyclic antidepressants. Drug acquisition and office visit costs were applied to estimate the budget impact relative to the current environment over 3 years. Uptake of rifaximin was assumed to be 3.5% (year 1), 8.5% (year 2), and 15% (year 3). Adverse events and their associated costs were deemed similar between treatments and not included. **RESULTS:** The projected 1-, 2-, and 3-year budget impact of rifaximin resulted in annual savings for the health plan of $4,673,829 [per member per month (PMPM): $0.04], $11,350,728 (PMPM: $0.09), and $20,030,696 (PMPM: $0.17), totaling $36,055,253 over 3 years. Model results were most sensitive to time horizon, unit drug costs, and annual doses of alosetron and rifaximin; however, these only impacted the magnitude of savings relative to the current environment. Savings were expected when rifaximin was administered for up to 2 courses of therapy annually. **CONCLUSIONS:** This model suggests that the treatment of IBS-D with rifaximin, despite its higher unit cost, may be associated with savings when used up to twice per year.

PGI14
BUDGET IMPACT ANALYSIS OF HEPATITIS C DRUGS IN MED-CAL

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OBJECTIVES: The purpose of this study is to estimate the annual budget impact and the cost Per Member per Month of the testing and treatment of hepatitis C in the Medi-Cal population using the current testing guidelines **METHODS:** A budget impact analysis was constructed from a state Medicaid perspective to depict the financial consequences of implementing the testing and linkage to care guidelines recommended by the CDC, AASLD and USPSTF for persons born between 1945 and 1965. The model included disease testing and drug reimbursement cost. Of the 2,277,106 Medi-Cal beneficiaries with birthdates between January 1, 1945 and December 31, 1964, 1,894,144 are in the Fee for Service and not eligible for Medicare. Costs of adverse effects and non-adherence were excluded from the analysis. **RESULTS:** The total cost in one budgetary year of testing and treating the birth cohort ranged from between $5,230,285,333.21 and $24,207,966,240.39. The cost per member per month increases from $0.55 to between $77.76 and $357 if the birth cohort testing recommendation is implemented. **CONCLUSIONS:** In the base case analysis, the birth cohort testing increases the overall cost by over 100% from the current risk based testing and treating strategy. Furthermore, sensitivity analysis shows a 78% increase from the base case estimates if adjustments are made for additional risks in the birth cohort. Treatment of genotype 3 has the biggest budget impact followed by the treatment of Genotype1 Interferon ineligible persons. This research was conducted without the authorization of the California Department of Health Care Services and is not endorsed or validated by the Department.

PGI15
FINANCIAL IMPACTS OF USING OMEPRAZOLE ORAL SUSPENSION FOR PREVENTING UPPER GASTROINTESTINAL BLEEDING EARLY AFTER INTENSIVE CARE ADMISSION

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OBJECTIVES: The objective of the present study was to estimate the financial consequences of using omeprazole immediate-release (IR) oral suspension versus intravenous (IV) infusion of pantoprazole for preventing stress-related upper gastrointestinal bleeding in critically ill patients from the perspective of the health care system. **METHODS:** An Excel®-based model was developed to compare the cost of prevention of upper gastrointestinal bleeding early after intensive care admission using the current IV pantoprazole formulation versus omeprazole IR oral suspension. Total costs included the cost of acid-suppressive drugs (proton pump inhibitors) and related clinical outcomes. Inputs were obtained from a local clinical trial, the Ministry of Health database, insurance organizations, hospital and pharmacy registries, the relevant literature, and expert opinion. The robustness of the input data was investigated by one-way sensitivity analysis. During the study period (November 2012 to September 2013), 4,150 patients were admitted to intensive care units in the different provinces of Iran. The model was developed based on the results of a randomized controlled trial in which an experimental group and a control group received omeprazole IR oral suspension and pantoprazole IV, respectively. **RESULTS:** According to the proposed model, the cost of preventing gastrointestinal bleeding using pantoprazole IV was US$950,000, while US$750,000 was spent on omeprazole IR oral suspension. Replacement of IV pantoprazole by omeprazole IR oral suspension would lead to an annual cost saving of almost US$200,000 (US$4 per member per month) to the health care system. **CONCLUSIONS:** In the present study, a budget impact analysis was performed to assess the financial consequences of using omeprazole IR oral suspension in place of pantoprazole IV for prevention of upper gastrointestinal bleeding. The better preventive effect of omeprazole IR oral suspension when compared with conventional therapy using pantoprazole IV was the major reason for the final comparative budgetary savings.

PGI16
THE HIGH COST PATIENTS ON WAITING LIST FOR THE LIVER TRANSPLANTATION. MAIN BURDENS AND CONSEQUENCES FOR THE PUBLIC HEALTH SYSTEM

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OBJECTIVES: There is a growing number of patients on the waiting list for liver transplantation, which is currently the only treatment option for patients with severe hepatic cirrhosis. The aim of this study was to determine the main factors and the impact of the cost of maintaining the cirrhotic patients on the waiting list for liver transplant. **METHODS:** We evaluated 493 patients on the waiting list for liver transplantation between the years 2012 and 2014. Of these 139 were called to transplantation, 190 remained on the waiting list, 106 were removed by health status and 58 died in the list. We used a detailed analysis of micro-costs on the waiting list, including clinical data and the cost of materials, drugs, laboratorial tests, human resources and hospitalizations. **RESULTS:** The total cost for patients with MELD>30 was US$10,003.31 ± 7,277.82, MELD 15-29 US$6,585.66 ± 7,526.33 and MELD<15 US$3,201.98 ± 5,001.30 (p <0.001). The time spent in waiting list was 211 ± 228 days to MELD>30, 308.17 ± 285.58 to MELD 15-30 and 209.1 ± 208.23 days to MELD<15 (p<0.001). Hospitalizations occurred in 69.9% of patients with MELD>30, 56.4% in MELD 15-30 and 25.8% in MELD<15 (p<0.05). The cost of hospitalizations was US$9,836.15 ± 7,024.82 in patients with MELD>30, US$7,442.51 ± 7,792.56 for patients with MELD 15-30 and US$6,470.01 ± 6,927.64 to MELD<15 (p<0.05), corresponding to 68.1%, 60.9% and 51.1% of total expenditures respectively. The cost of medications and laboratorial tests for patients with MELD>30 was US$3,826.31 ± 3,649.99, US$2,480.15 ± 2,996.56 to MELD 15-30 and US$1,271.28 ± 1,987.91 to MELD<15 (p<0.001). **CONCLUSIONS:** More severe patients have high-cost on waiting list for liver transplantation. The long time on waiting list, complications that lead to hospitalizations, and expensive laboratorial tests and medications cause a great financial impact on the public health system.

PGI17
COST EFFECTIVENESS OF NEW HEPATITIS C THERAPIES

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OBJECTIVES: New Hepatitis C (HCV) therapies are more effective at treating HCV, but come at higher financial costs. Boceprevir has been used with peginterferon and ribavirin antivirals for treatment of HCV, achieving sustained virologic response (SVR) rates of 65% in clinical trials. Simeprevir, sofosbuvir and combination ledipasvir and sofosbuvir are new therapies that have achieved SVR of over 90% in phase III clinical trials. Estimating the cost effectiveness of these new therapies is important for providers to determine which treatments to adopt in the context of growing cost concerns. **METHODS:** We used Markov simulation to evaluate the cost effectiveness of simeprevir, sofosbuvir and combination therapy ledipasvir and sofosbuvir vs. the assumed standard of care, boceprevir, among HCV genotype 1 patients over a 30-year time horizon. Patients progress through stages of the natural history of HCV-liver fibrosis/cirrhosis, liver transplant and death. Costs, QALYs and outcomes were estimated from clinical trials and previously published literature. We calculated the incremental net monetary benefit (INMB) between each therapy and standard of care. We ran multivariate probabilistic sensitivity analyses (PSA) to quantify the uncertainty of the results. **RESULTS:** New therapies have higher costs and yield higher QALYs than boceprevir. Simeprevir at 12 and 24 weeks have the highest INMB ($85,335.02 and $19,069.64, respectively). Sofosbuvir/ribavirin has a net monetary loss compared to the standard of care. The results identify the simeprevir therapy to be the most cost effective. PSA reveals simeprevir has the highest likelihood of being cost-effective as compared to boceprevir when all inputs are varied simultaneously. **CONCLUSIONS:** Of the new HCV therapies, simeprevir therapy is the best value for money when compared to boceprevir. Simeprevir yields the highest QALYs of the newer therapy regimens. Further research should focus on patient adherence to therapy and associative costs of adverse events to better elucidate value.

PGI18
A COST-UTILITY ANALYSIS OF BIOLOGICS FOR MODERATE-TO-SEVERE CROHN'S DISEASE: EVIDENCE SYNTHESIS USING A BAYESIAN NETWORK META-ANALYSIS

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OBJECTIVES: To evaluate the cost-effectiveness of infliximab, adalimumab, certolizumab pegol, and vedolizumab in Moderate-to-Severe Crohn's disease from a US payer perspective with evidence synthesis from a Bayesian network meta-analysis (NMA). **METHODS:** A Markov model was constructed to evaluate the lifetime cost-effectiveness of biologics and active control (azathioprine) in Crohn's disease. The model used a 3-month cycle with six health states: Moderate-to-Severe, Mild-to-Severe, Remission, Severe/Fulminant, Post-Surgery, and Death. Transition probabilities from Moderate-to-Severe to Remission were synthesized using a Bayesian NMA. Other transition probabilities and utility values were derived from the literature. Drug costs were based on Medicare Part-B Drug and Biological Average Sales Price Payment files. Costs and QALYs were discounted at 3-percent/year. One-way and probabilistic sensitivity analyses (PSA) tested the robustness of the results. Willingness-to-pay threshold of $100,000/QALY was considered cost-effective. **RESULTS:** Transition probabilities (Moderate-to-Severe to Remission states) for active control, infliximab, adalimumab, certolizumab pegol, and vedolizumab were 0.240, 0.392, 0.483, 0.422, and 0.426, respectively. Utility gained for active control, infliximab, adalimumab, certolizumab pegol, and vedolizumab were 17.84, 26.32, 26.35, 26.33, and 26.33 QALYs, respectively. Total direct costs for active control, infliximab, adalimumab, certolizumab pegol and vedolizumab were $289,300, $330,700, $425,900, $547,800, and $423,200, respectively. ICER for infliximab compared to active control was $4,881/QALY gained. ICER for adalimumab